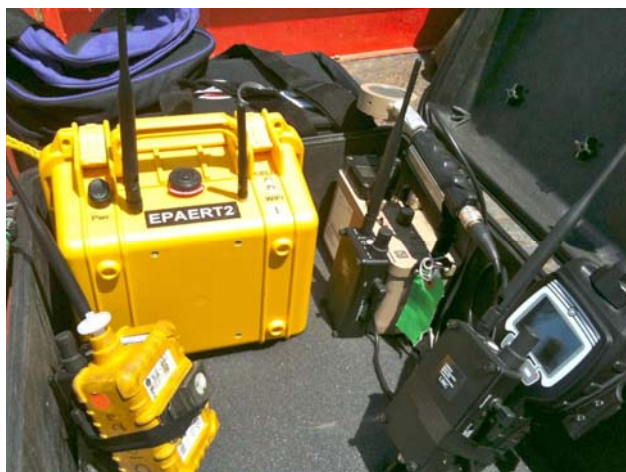




Implementing VIPER on Remedial Sites

*Informational briefing for Jim Woolford on the
capabilities of ERT's VIPER system*



Joe Schaefer
609-865-8111



Schaefer.joe@epa.gov



Sensor Data Issues for Superfund

- ❑ Volume of data
- ❑ Real-time doesn't always mean "real-time"
 - Data from PRP operated sensors is delivered to EPA using the same report based approach delays delivery
- ❑ Raw data doesn't correspond to our health benchmarks
 - Instantaneous readings versus Exposure-based action levels
- ❑ Time required to acquire, store, transform and re-format for dissemination
 - Increases contractor cost
 - Delay in releasing screening data erodes public confidence and creates sense that EPA is hiding information

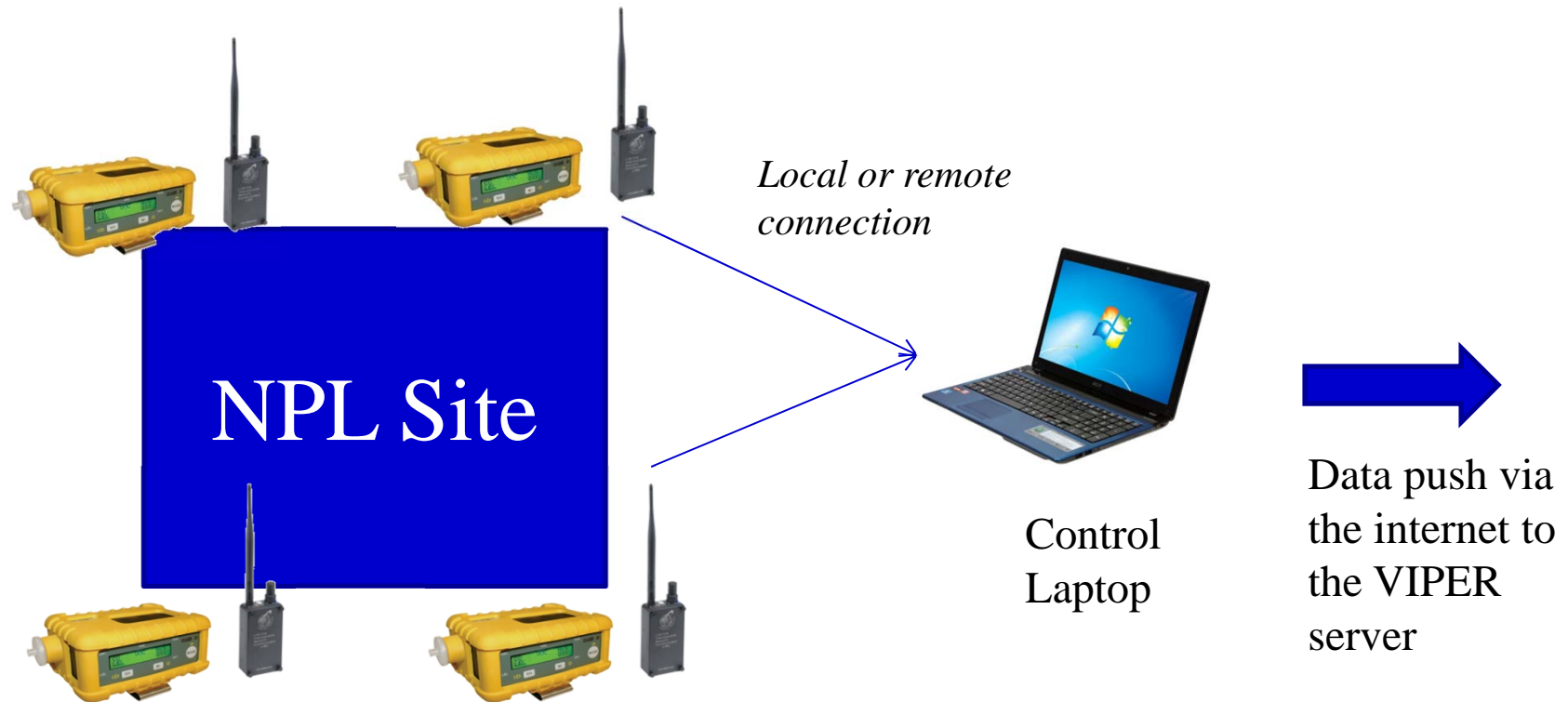


VIPER

- ❑ System was built to handle the unique volume and real time utilization requirements inherent to sensors
- ❑ Based on federal data standards
- ❑ Adding new types of sensors requires no core system modifications
- ❑ Secure live view of the data via the web
- ❑ System monitors the data and determines exceedances, sending out notifications in real-time




Workflow





Web view


VIPER: DEPLOYMENT MANAGER
Welcome [schaefer.joe@epa.gov](#)! [[Log Out](#)] [[Change Password](#)]

[Deployments \(130\)](#)
[Unassigned Runs \(2\)](#)
[Admin](#)
[Help](#)

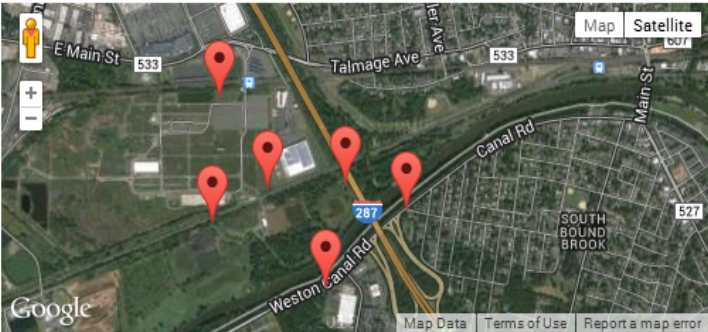
R02 American Cyanamid Site Deployment [\[Edit\]](#)

All Times Eastern, DST Observed

Start: 1/23/2014

End:

Description:



AreaRAE(s):

~	Instrument ID	Connection	Location	VOC	VOC 15-Min TWA	Received
	(.109) AreaRAE * EPA Location 3 PRP Location I2	OK	40.5552210, -74.5506540	0.0 ppm	0.000000 ppm	3/19/2014 2:59 PM
	(.115) AreaRAE * EPA Location 4 PRP Location I3	OK	40.5554270, -74.5459520	0.3 ppm	0.201444 ppm	3/19/2014 2:59 PM
	(.28) AreaRAE * EPA Location 6 Behind Ballpark	OK	40.5591460, -74.5535940	0.0 ppm	0.000000 ppm	3/19/2014 2:59 PM
	(.42) AreaRAE * EPA Location 5 PRP Location I1	OK	40.5537540, -74.5540280	0.0 ppm	0.000000 ppm	3/19/2014 2:59 PM
	(.76) AreaRAE * EPA Location 2 Pumping Station	OK	40.5509280, -74.5471480	0.0 ppm	0.000000 ppm	3/19/2014 2:59 PM
	(.97) AreaRAE * EPA Location 1 Residential	OK	40.5543300, -74.5422390	0.0 ppm	0.000000 ppm	3/19/2014 2:59 PM



Benefit: Data Storage

- ❑ All sensor data for a site, no matter the size can be sorted in VIPER meaning nothing is lost to reduction or inability to access a data logger
- ❑ Once instruments are connected, VIPER handles the acquisition and storage. No contractor LOE for managing the database.
- ❑ Complete datasets are immediately available for FOIA requests or any other records needs



Benefit: Real-Time Decision Making

- ❑ Collect real-time data and actually use it in real-time
- ❑ Common operating picture for sensor data means EPA and PRP don't have to co-locate and can better allocate resources
- ❑ The monitors in VIPER allow a project manager to evaluate the data in a way that matches their DQOs without the need for any data post-processing
 - If dust levels exceed X at the fenceline for a period of 10 minutes, notify the PRP to stop work
 - Notify the local fire chief immediately if there is break through detected in the exhaust stack



NPL Case Study: Standard Mine

- ❑ Rehabbing of abandoned addit
- ❑ VIPERized water quality meters (pH, conductivity, water level) were placed downstream of treatment cell
- ❑ Monitoring was 24/7 so if the cell had a breach overnight, the work crews would have been notified and mobilized to stabilize the situation
- ❑ Work was being done at 11K ft. so satellite dish was necessary for internet uplink





NPL Case Study: Libby, MT

- ❑ Repaving operation on the main road through downtown
- ❑ Particulate monitors were deployed on the sidewalks in front of the local business
- ❑ Notification of elevated readings sent to MTDOT, so they could adjust dust suppression controls
- ❑ Monitoring system helped assure public that EPA was taking the operation seriously and had a process in place to deal with any issues



Capability: Remote Sampling

- ❑ WiFi enabled switches
- ❑ Switches can trigger a pump for the collection of a sample
- ❑ Opportunity to automatically trigger samples based on readings recorded in VIPER
 - If the stack has a reading $> X$, start the collection of 24 hour samples at the fenceline
 - Allow collection of water samples post storm event without the need to arrange the logistics of a field mobilization and hope you catch the event in time





NPL Case Study: American Cyanamid

- ❑ Concern about impact to nearby receptors if there was an issue with the operation of the thermal oxidizer unit during the OU8 pilot study
- ❑ EPA pre-positioned summa canisters at the fenceline and in the community equipped with the remote activation switches
- ❑ If monitoring instruments show an exceedance, sample collection can be remotely triggered providing analytical data



Questions?

- ❑ www.epaossc.org/viper
- ❑ Joe Schaefer
 - 609-865-8111
 - Schaefer.joe@epa.gov
- ❑ ERT Software Support
 - 1-800-999-6990
 - ertsupport@epa.gov